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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/568,805

02/21/2006

Takao Inoue

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EXAMINER

RADEMAKER, CLAIRE L

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

11/15/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/568,805

Applicant(s)

INOUE ET AL.

Examiner

Claire L. Rademaker

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/21/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/21/2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 2/21/2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1 and 4-5 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9 and 11 of copending Application No. 10/576,260. Although the conflicting claims are not identical, they are not patentably distinct from each other because both claim a nonaqueous electrolyte battery comprising positive and negative electrodes with positive and negative electrode active material layers, respectively, a nonaqueous electrolyte, and a conducting material in said positive electrode active material, wherein the conducting material comprises at least one nitride (such as zirconium nitride), carbide, or boride

having particles of 0.2-5 μ m average particle diameter easily dispersed into said positive electrode active material layer.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the positive electrode active material must be shown or the features canceled from the claims. No new matter should be entered. It is unclear whether the active material layer faces inwards so that it touches the columnar member during the flexibility experiment, or whether the active material layer faces outwards, so the active material does not touch the columnar member during the flexibility testing.

Furthermore, the drawings are objected to because the coloring and graininess of Figures 21-28 make them difficult to decipher.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

5. The Specification is objected to because of the following informality: The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Nonaqueous Electrolyte Battery Positive Electrode Active Material Containing Non-Carbon Conductive Material.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3-4, and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyasaki et al. (JP 09-022732) in view of Shiga et al. (US 2002/0018926) and Uetani et al. (US 4,101,719).

With regard to claims 1 and 3, Miyasaki et al. teaches a nonaqueous electrolyte battery (paragraph [0009]) comprising a positive electrode (2, paragraphs [0010]-[0011]) including a positive electrode active material LiCoO_2 or LiNiO_2 (paragraphs [0011]-[0012]), a negative electrode (4, paragraphs [0010]-[0011] & [0018]) including a negative electrode active material (paragraph [0018]), a nonaqueous electrolyte (paragraphs [0011] & [0015]) substantially constituted of only a solvent and a solute (paragraph [0015]), and a conducting material (paragraphs [0011] & [0013]) contained in said positive electrode active material layer and constituted of metal carbide or metal nitride (paragraph [0013]) having particles of 0.2-5 μm in average diameter (paragraph [0014]) easily dispersed into said positive electrode active material layer, but fails to teach the concept of the positive electrode active material layer having a layered rock salt structure.

Shiga et al. teaches the concept of a battery (paragraphs [0011] & [0032]) comprising a positive electrode active material LiCoO_2 or LiNiO_2 (paragraphs [0014] & [0034]) which constitutes said positive electrode active material layer having a layered rock salt structure (paragraph [0034]) in order to improve safety of the electrolytic cell, even during overcharging (paragraph [0062]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concept of the active material having a rock salt structure of Shiga et al. to the active material layer of Miyasaki et al. in order to improve safety of the electrolytic cell, even during overcharging (paragraph [0062]).

Miyasaki et al. as modified by Shiga fails to teach the specified filling density of the conducting material.

Uetani et al. teaches a battery (col. 3, lines 5-7) comprising a positive electrode active material layer (col. 5, lines 47-51 & col. 7, lines 15-18) with a filling density of about 5g/mL to 7g/mL (col. 7, lines 15-18) in order to improve discharge capacity (col. 7, lines 22-26; Figure 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the concept of the positive electrode active material layer having a packing density between about 5g/mL and 7g/mL of Uetani et al. to the modified battery of Miyasaki et al. in order to improve discharge capacity (col. 7, lines 22-26; Figure 4).

With regard to claim 4, Miyasaki et al. teaches that the conducting material can include a metal nitride (paragraphs [0013] & [0023]).

With regard to claims 7-9, Miyasaki et al. teaches that the conducting material can include tungsten carbide (paragraph [0013]) or tantalum carbide (paragraph [0013]).

8. Claims 5-6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyasaki et al. (JP 09-022732) in view of Shiga et al. (US 2002/0018926) and Uetani et al. (US 4,101,719), as applied to claims 4 or 7 above, and further in view of Hasegawa et al. (JP 2000-299107).

The disclosure of Miyasaki et al., Shiga et al., and Uetani et al. as discussed above are fully incorporated herein.

With regard to claims 5 and 10, Miyasaki et al. as modified by Shiga et al. and Uetani et al. fails to teach that the conducting material can include zirconium nitride or zirconium carbide.

Hasegawa et al. teaches the concept of a battery (paragraph [0004]) comprising a positive electrode active material (paragraph [0004]) containing a conducting material (paragraphs [0004] & [0008]) wherein the conducting material can include zirconium nitride (paragraphs [0004] & [0008]) or zirconium carbide (paragraphs [0004] & [0008]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the conducting material of modified Miyasaki et al. with the zirconium nitride or zirconium carbide of Hasegawa et al. because zirconium nitride and

zirconium carbide are known to be effective conducting materials and one would have a reasonable expectation of success in doing so.

With regard to claim 6, Miyasaki et al. teaches the concept of the positive electrode active material layer (paragraphs [0011]-[0012]) containing 3-15 mass % conducting material (paragraphs [0013]-[0014]).

9. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyasaki et al. (JP 09-022732) in view of Shiga et al. (US 2002/0018926) and Uetani et al. (US 4,101,719), as applied to claim 1 above, and further in view of Numata et al. (JP 2003-42101).

The disclosure of Miyasaki et al., Shiga et al., and Uetani et al. as discussed above are fully incorporated herein.

With regard to claims 11-12, Miyasaki et al. as modified by Shiga and Uetani et al. fails to teach the use of a binder.

Numata et al. teaches the concept of an electrode active material layer (paragraphs [0011]-[0012]) can comprise a binder (paragraphs [0043]-[0044]) containing polyvinylidene fluoride (paragraph [0044]) in order to ensure good adhesion between the electrode and the charge collector (paragraph [0044]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the binder of Numata et al. to the electrode active material layer of modified Miyasaki et al. in order to ensure good adhesion between the electrode and the charge collector (paragraph [0044]).

With regard to claims 13, Miyasaki et al. as modified by Shiga, Uetani et al., and Numata et al. fails to teach the specified shape of the positive electrode.

While Miyasaki et al. as modified by Shiga, Uetani et al., and Numata et al. does not teach the specified electrode shape, it has been held that the configuration or shape of a claimed device is a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed device is significant. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Claire L. Rademaker whose telephone number is 571-272-9809. The examiner can normally be reached on Monday - Friday, 8:00AM - 4:30PM, EST.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CLR



ALEXA D. NECKEL
SUPERVISORY PATENT EXAMINER